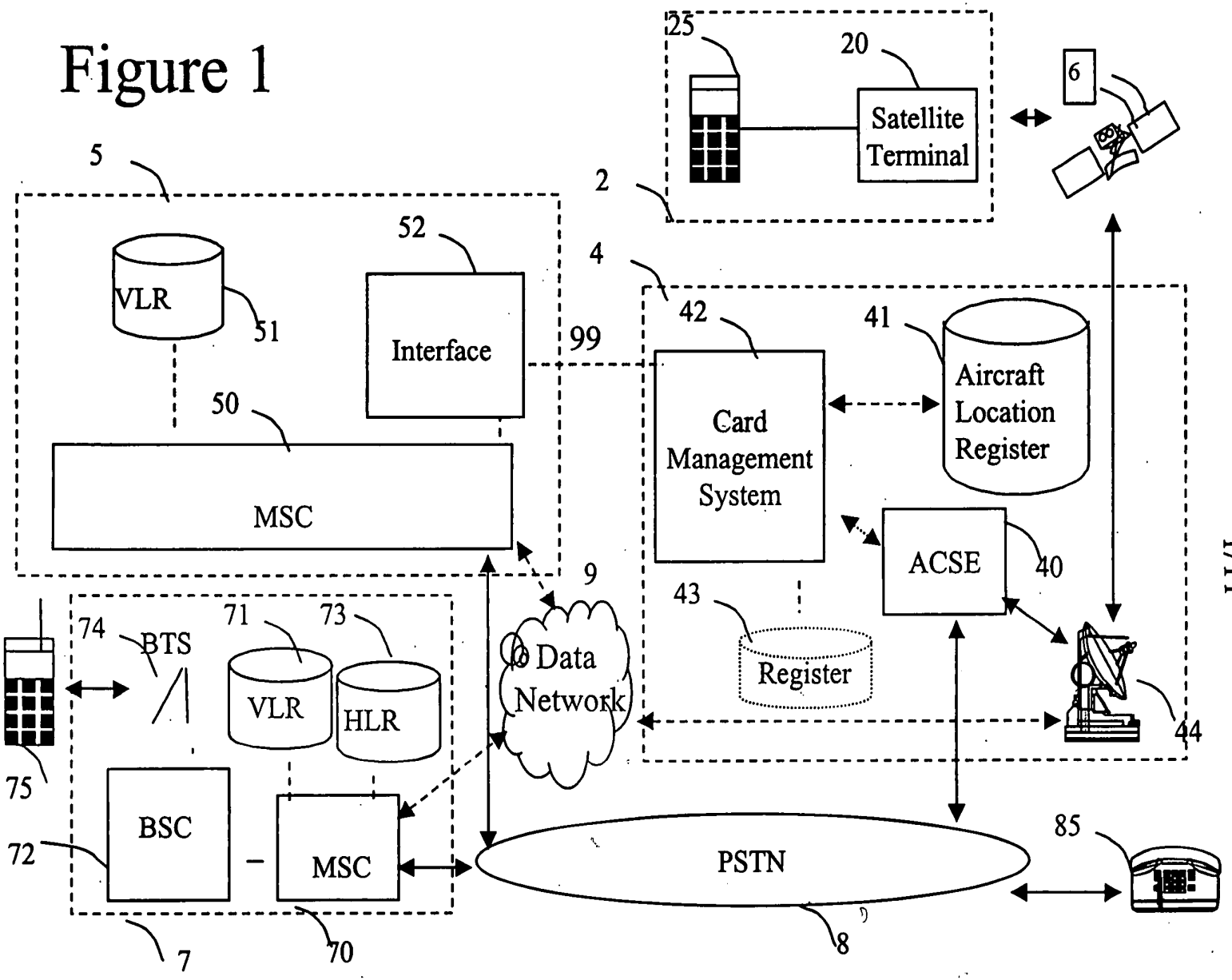
Figure 1


25
20
Satellite Terminal
6
2
5
52
4
VLR
51
Interface
99
42
41
Aircraft Location Register
50
Card Management System
MSC
ACSE
40
9
43
74
BTS
71
73
Data Network
Register
VLR
HLR
44
75
BSC
72
MSC
85
PSTN
7
70
8

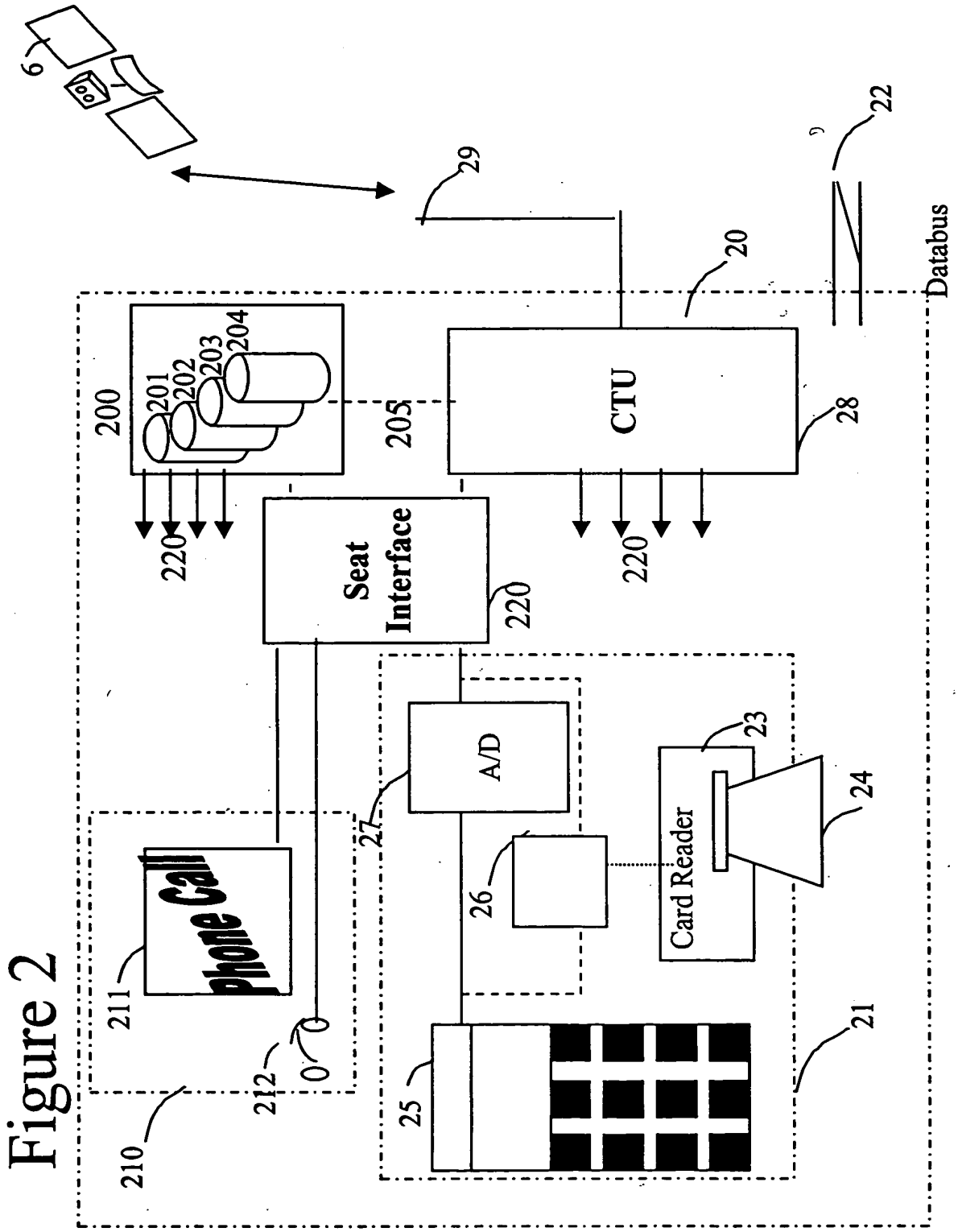
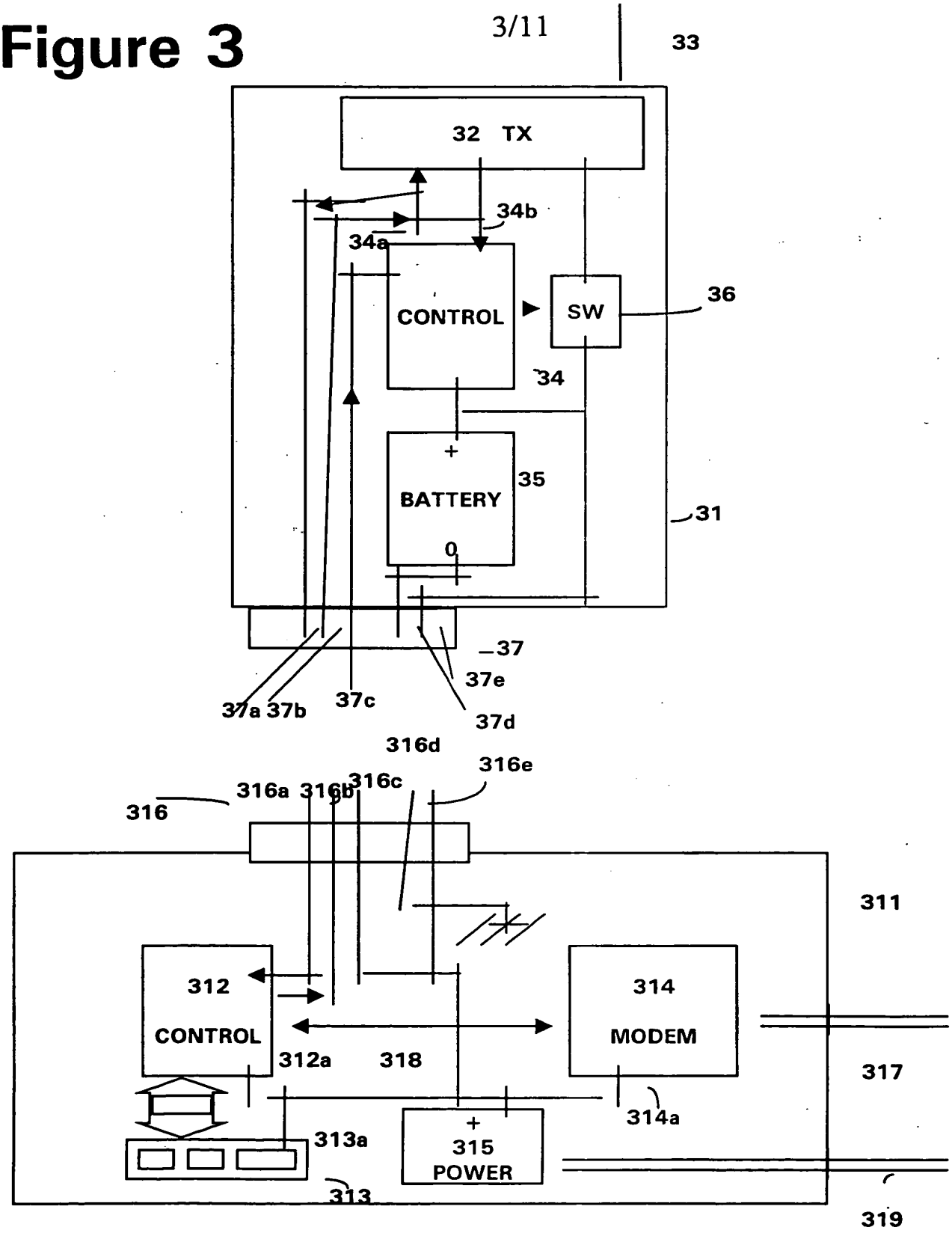

6
29
22
Databus
20
200
201
202
203
204
205
CTU
28
220
220
220
Seat
Interface
A/D
27
23
24
Card Reader
26
25
21
211
Phone Call
212
0
210

Figure 2

Figure 3


33
32 TX
34b
34a
CONTROL
SW
36
34
+
BATTERY
35
0
31
37
37a
37b
37c
37e
37d
316d
316e
316a
316b
316c
316
311
312
CONTROL
312a
318
314
MODEM
317
314a
313a
+
315
POWER
313
319

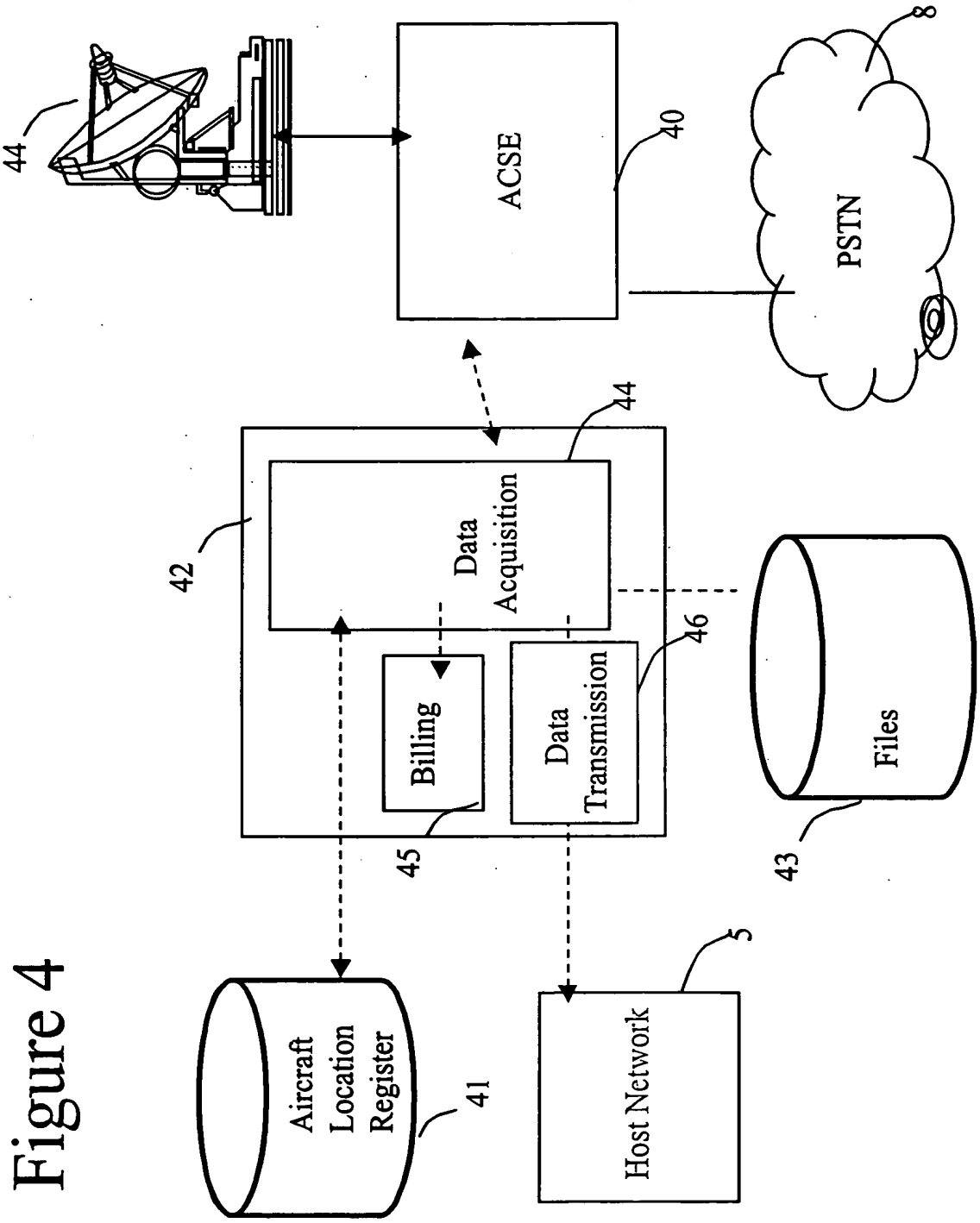

44
ACSE
40
PSTN
8
42
Data Acquisition
44
Billing
Data Transmission
46
45
Files
43
Aircraft Location Register
41
Host Network
5

Figure 4

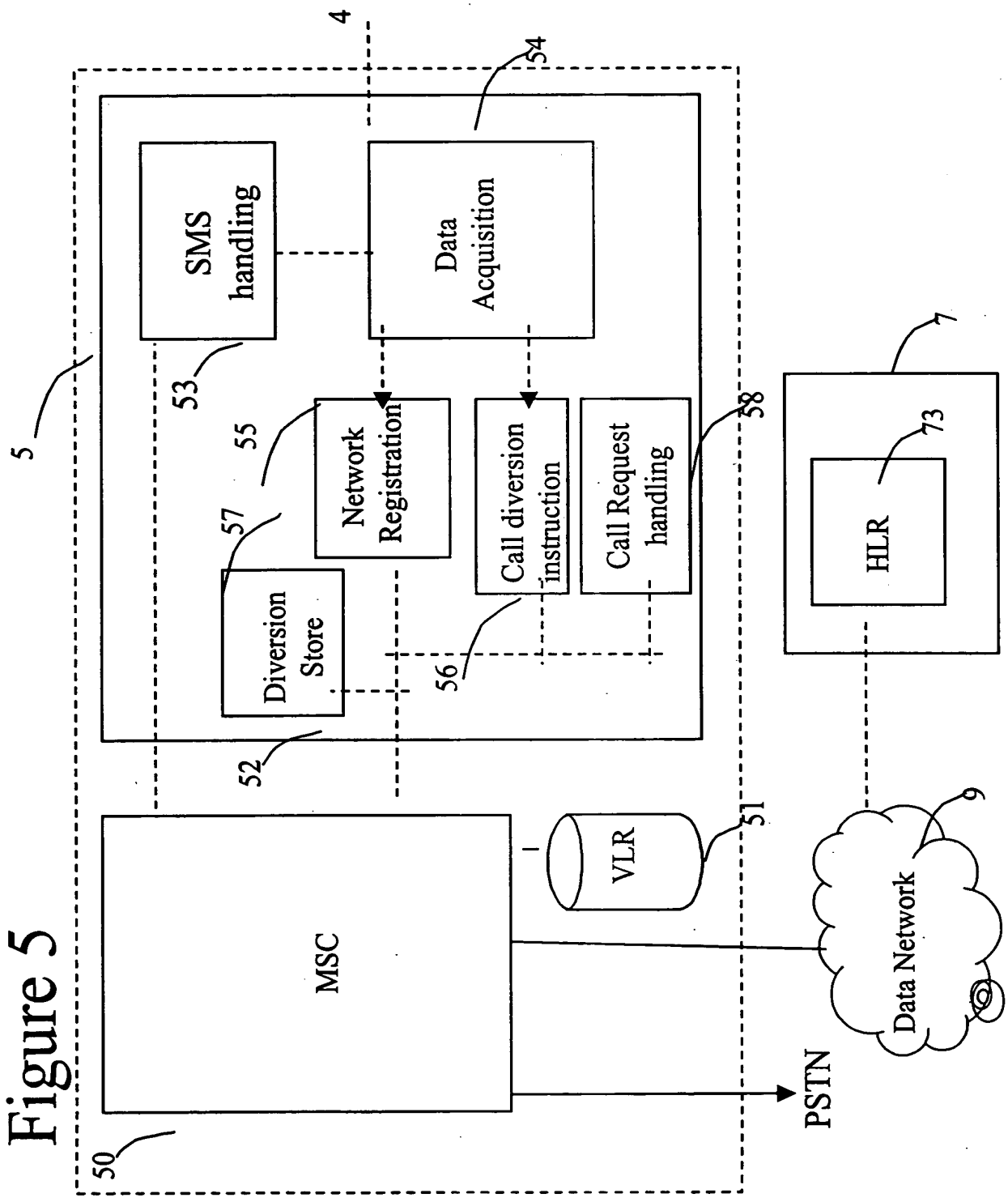

4
5
54
SMS handling
Data Acquisition
53
55
Network Registration
57
Diversion Store
56
Call diversion instruction
Call Request handling
58
52
7
HLR
73
MSC
VLR
51
9
Data Network
PSTN
50

Figure 5

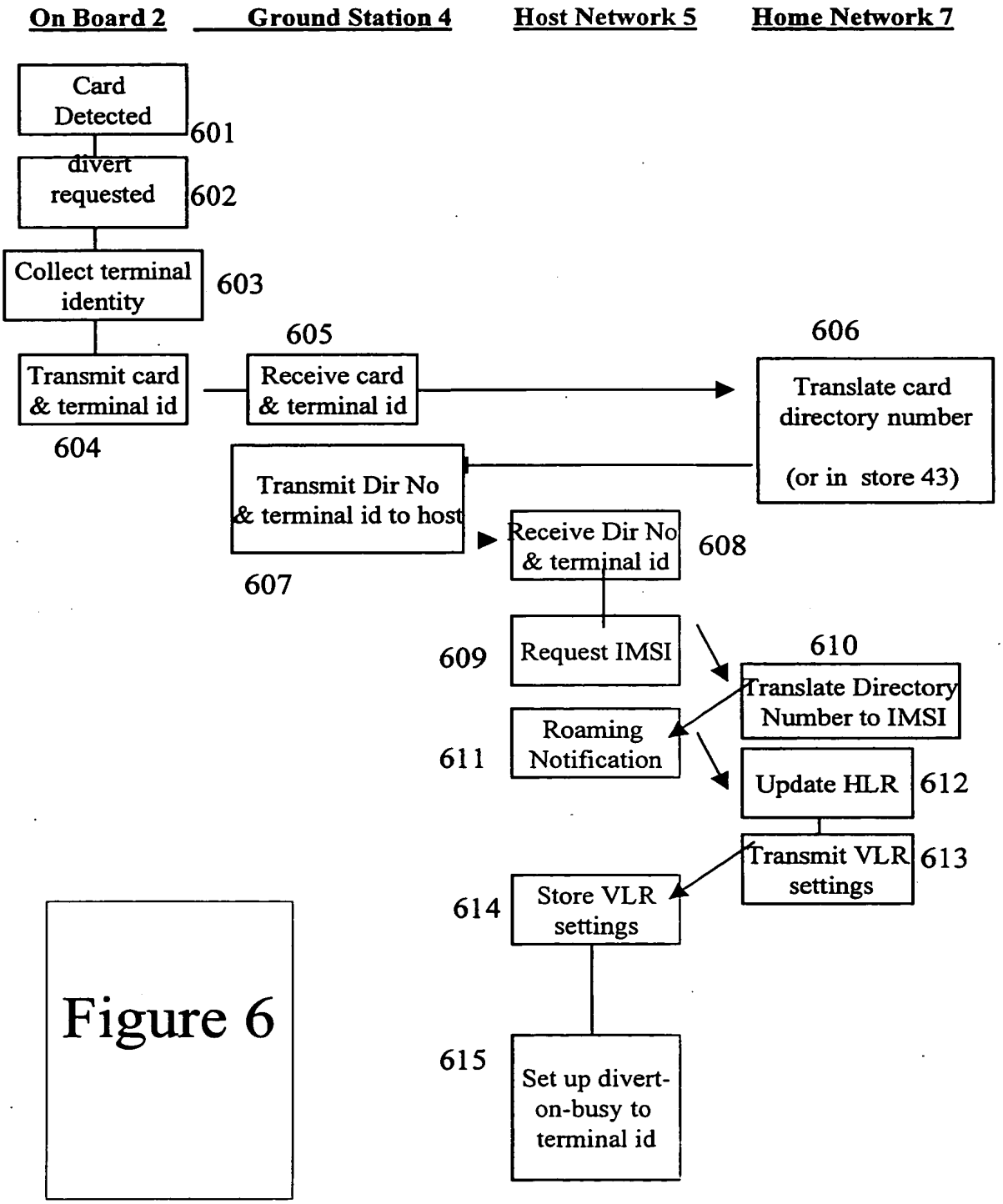

On Board 2
Ground Station 4
Host Network 5
Home Network 7
Card Detected
601
divert requested
602
Collect terminal identity
603
Transmit card & terminal id
604
605
Receive card & terminal id
606
Translate card directory number
(or in store 43)
Transmit Dir No & terminal id to host
607
Receive Dir No & terminal id
608
609
Request IMSI
610
Translate Directory Number to IMSI
611
Roaming Notification
Update HLR
612
Transmit VLR settings
613
614
Store VLR settings
615
Set up divert-on-busy to terminal id

Figure 6

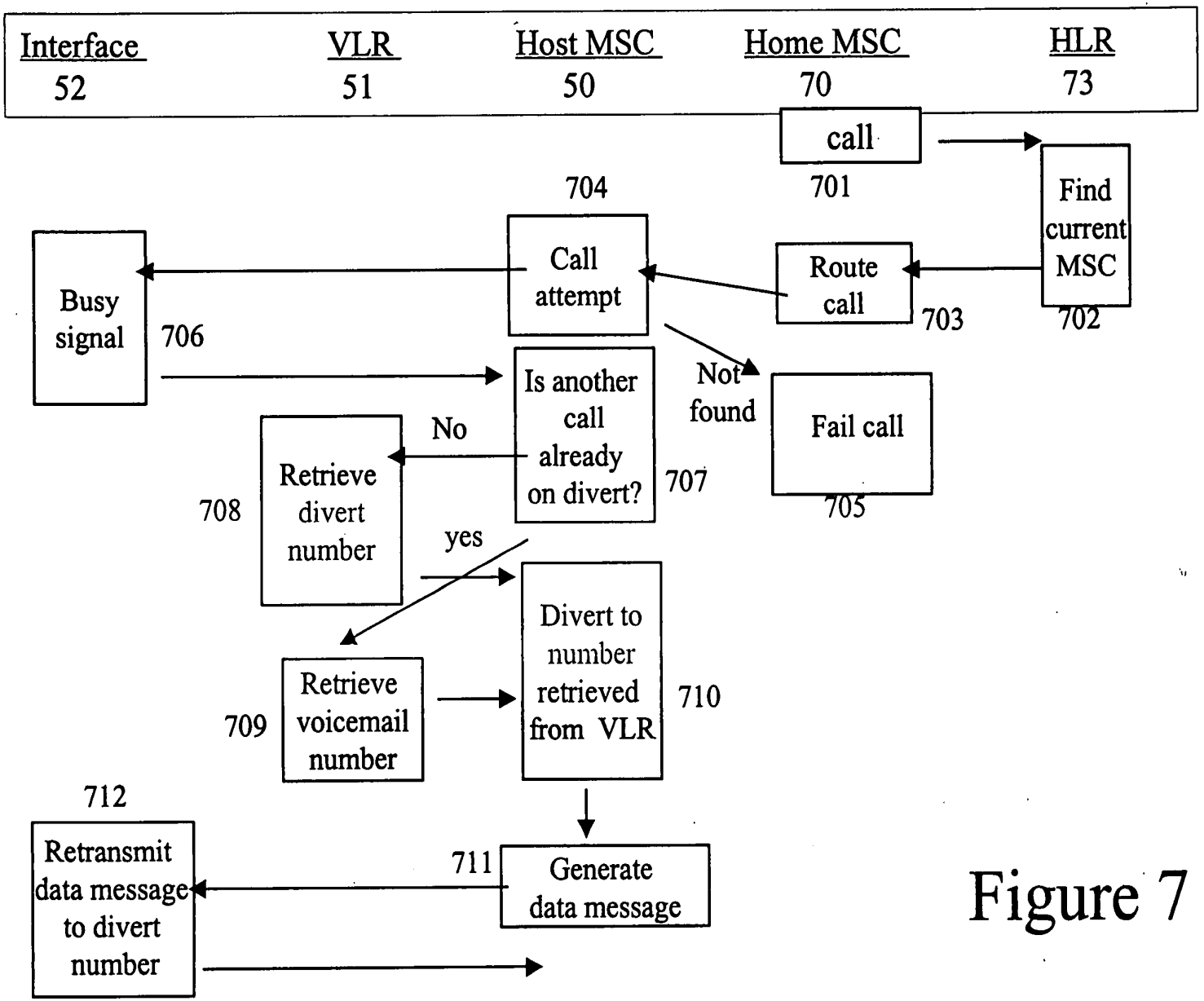

Interface
52
VLR
51
Host MSC
50
Home MSC
70
HLR
73
call
701
Find current MSC
702
Route call
703
Call attempt
704
Busy signal
706
Is another call already on divert?
707
No
Not found
Fail call
705
Retrieve divert number
708
yes
Retrieve voicemail number
709
Divert to number retrieved from VLR
710
Retransmit data message to divert number
712
Generate data message
711

Figure 7

Figure 8

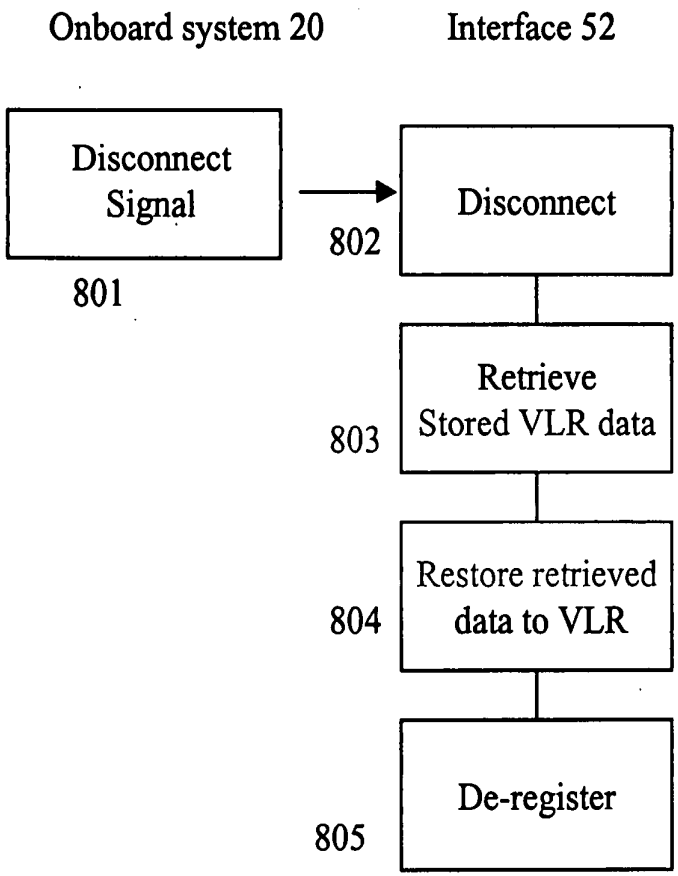
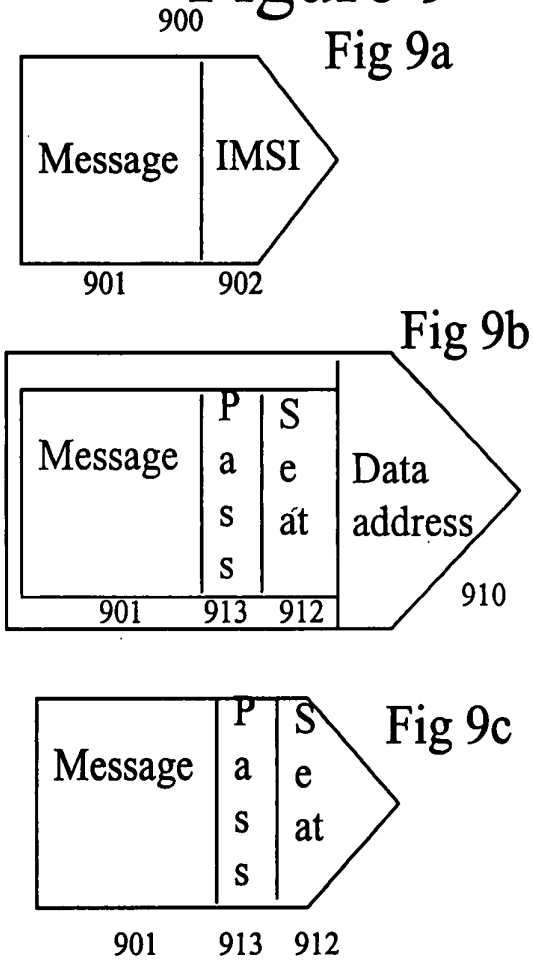


Figure 9



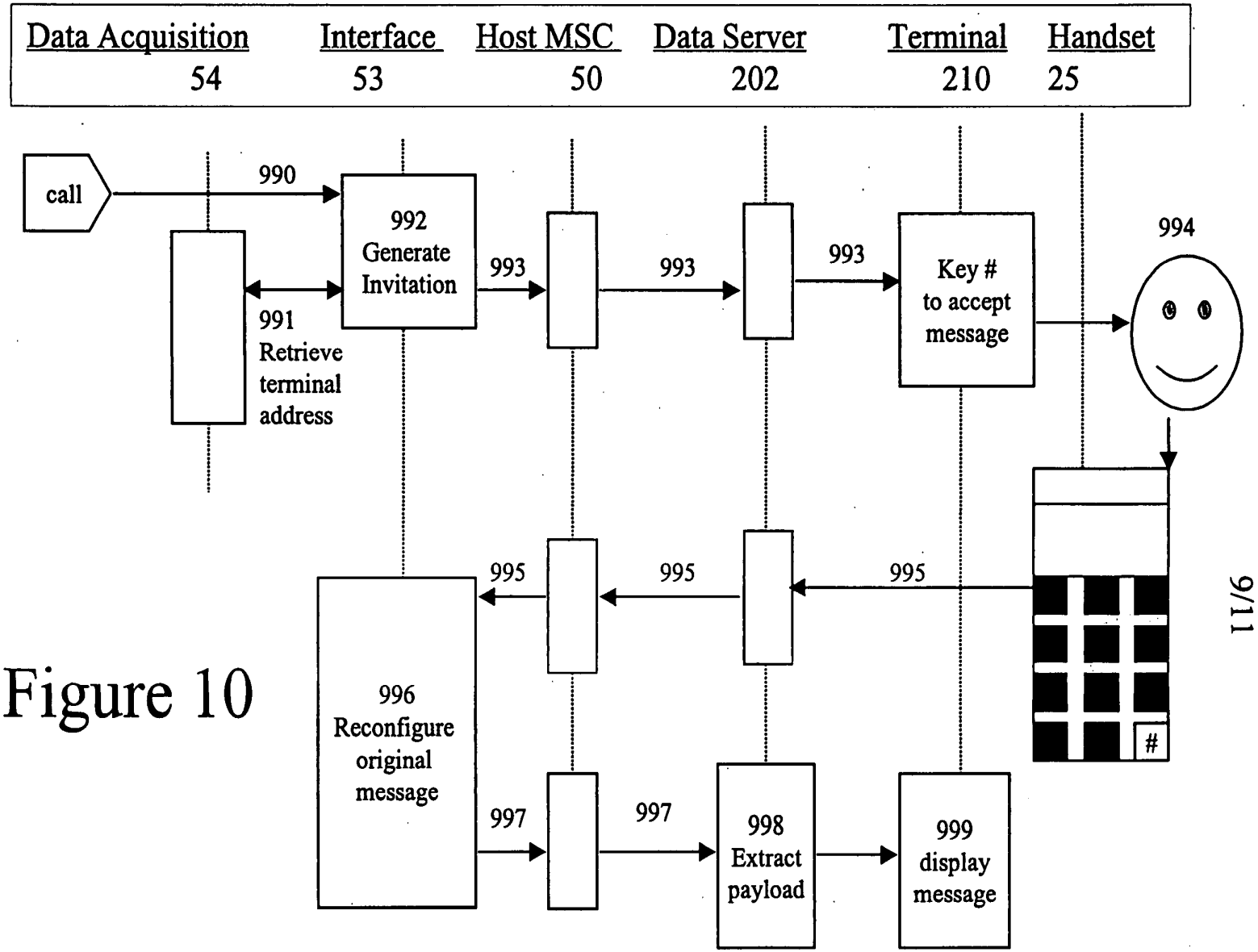

Data Acquisition
54
Interface
53
Host MSC
50
Data Server
202
Terminal
210
Handset
25
call
990
992
Generate
Invitation
991
Retrieve
terminal
address
993
993
993
Key #
to accept
message
994
995
995
995
996
Reconfigure
original
message
997
997
998
Extract
payload
999
display
message
#

Figure 10

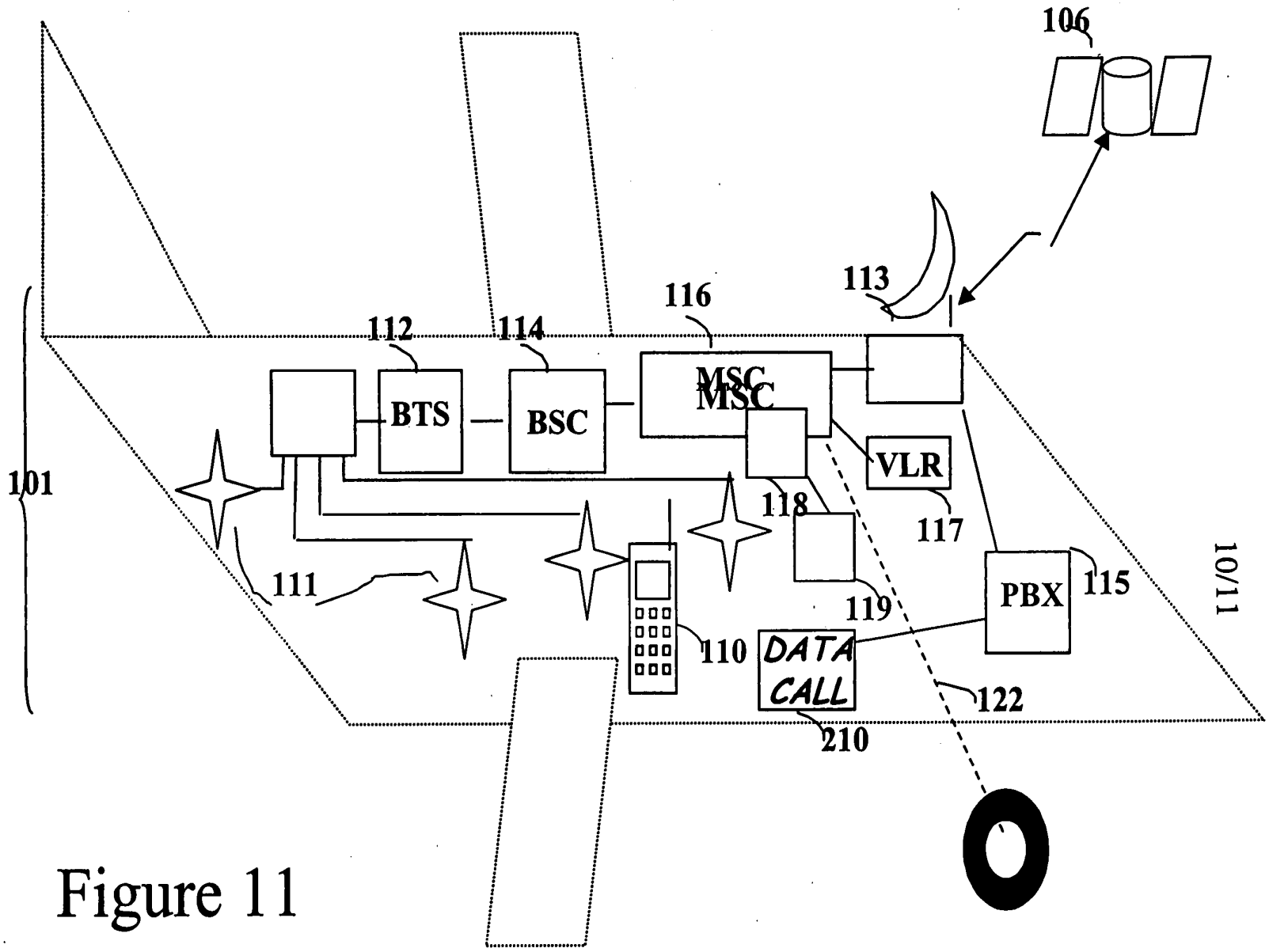
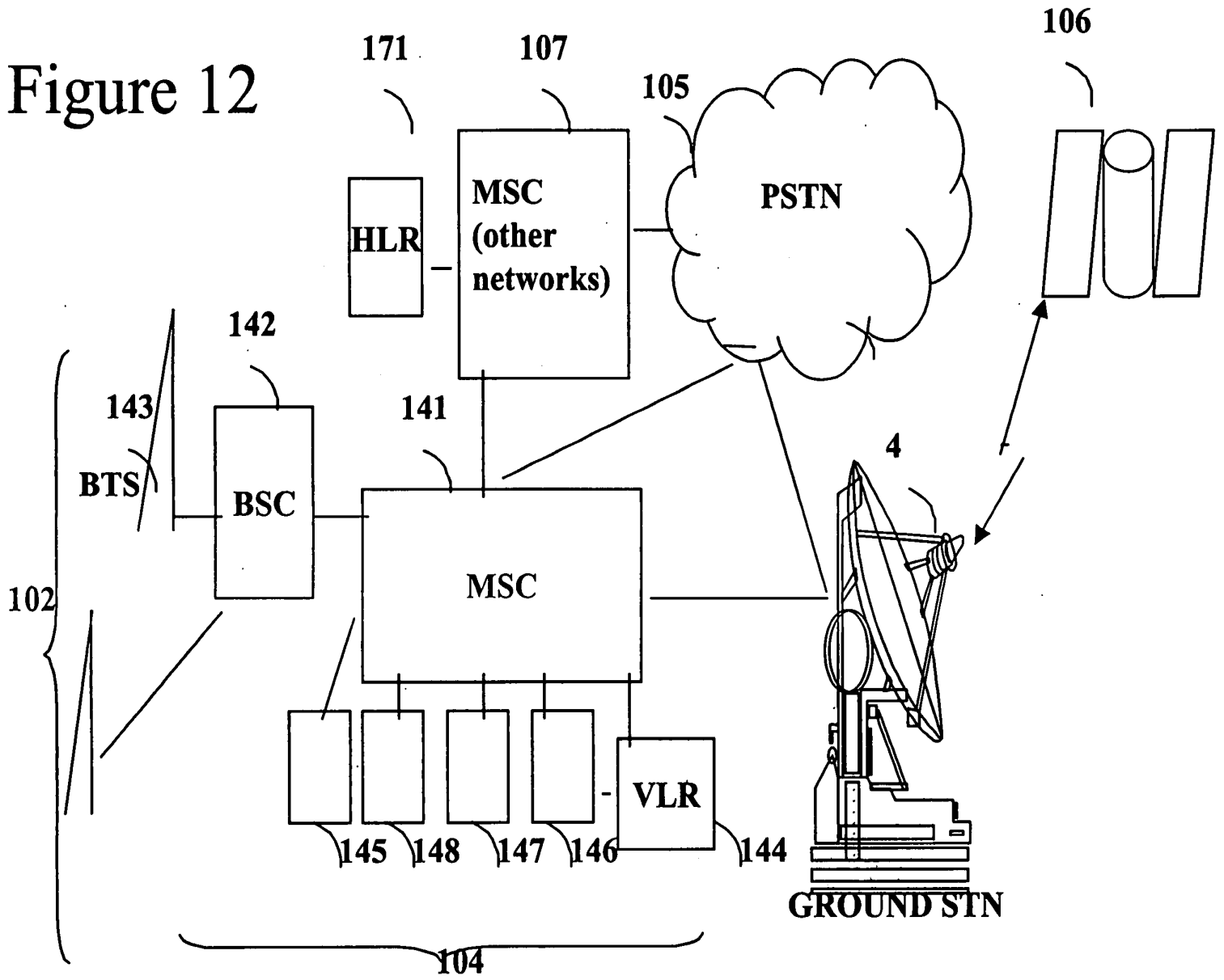

106
113
116
112
114
BTS
BSC
MSC
MSC
VLR
117
118
101
111
119
PBX
115
110
DATA
CALL
122
210

Figure 11

Figure 12


171
107
105
106
HLR
MSC
(other
networks)
PSTN
142
143
141
4
BTS
BSC
MSC
102
VLR
145
148
147
146
144
GROUND STN
104